

INL researcher recognized for heat transfer work

Long-time Idaho National Laboratory employee Donald M. McEligot has received the American Society of Mechanical Engineers (ASME) Heat Transfer Memorial Award, the highest honor given for heat transfer work by the organization.

The award recognized his "pioneering research contributions toward the fundamental understanding of viscous layer behavior, heated turbulent wall flows, effects of gas property variation and laminarization through key experiments, analysis and computations." The Heat Transfer Memorial Award was established in 1959 by the Heat Transfer Division of the ASME. In 1974, it was elevated to a society-wide award recognizing outstanding contributions to the field of heat transfer through teaching, research, practice and design or a combination of such activities.

McEligot has made outstanding contributions to the field of heat transfer through fundamental research aimed at assisting the thermal engineer. His accomplishments have occurred in academe, industry and government service. He is Professor Emeritus in Aerospace and Mechanical Engineering of the University of Arizona, and a Technical Leader in Thermal Science at the Idaho National Laboratory (INL). Currently he is on sabbatical leave from INL to serve as Distinguished Visiting Professor for the Institut für Kernenergetik und Energiesysteme (IKE) at Universität Stuttgart.

Photo: Donald M. McEligot

Professor Donald M. McEligot

Previously, he led a successful heat transfer research group at the University of Arizona, a hydrothermo-dynamics R & T department for Westinghouse Naval Systems Div., a "long term" research initiative at INL and, as an Aerospace Engineering Duty Officer, commanded units and accomplished technical projects in the Naval Air Systems Reserve program. He has completed research projects at Imperial College of Science and Technology, London, Universität Karlsruhe and the Max Planck Institut für Strömungsforschung, Göttingen. He has been a significant catalyst for international research partnerships in convective heat transfer and fluid mechanics.

He has conducted basic and applied studies of a wide range of fluid mechanics and convective heat transfer topics. He has over three decades experience in development, use and guidance of experimental thermal science and computational thermal fluid physics. He is perhaps best known for pioneering experiments and numerical analyses on transport property variation in internal turbulent, laminar and laminarizing gas flows and discovery of laminarization by heating.

He has been honored by an award as a Senior Fulbright Research Scholar to West Germany, selection to Fellow grade in the American Society of Mechanical Engineers, receipt of the Charles H. Jennings Memorial Award from the American Welding Society, promotion to full Professor of Aerospace and Mechanical Engineering with tenure at the University of Arizona and promotion to Captain, USNR. In 1996, he served as a Distinguished Foreign Scientist for the Japan Atomic Energy Research Institute (JAERI), one of only about ten selected in all fields worldwide. He was honored as their 2002 Distinguished Scientist by the Idaho Academy of Science.

As a member of the ASME, he has participated on the Gas Turbine Heat Transfer committee (K-14) for about three decades and has been elected a Life Fellow. He served two three-year terms as an Associate Editor of the Journal of Heat Transfer and was chairman of the General Papers committee of the Heat Transfer Division. Prof. McEligot was selected as a member of the U. S. Scientific Committee for the 12th International Heat Transfer Conference and has organized sessions for a variety of technical conferences for ASME and other societies.

The MIR Flow System set up for the Very High Temperature Reactor (VHTR) lower plenum flow study. The system uses optical measurement techniques and refractive index matching to obtain high-quality velocity field measurements in and around complicated geometries.

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